

**STEADY STATE FREE PRECESSION MAGNETIC RESONANCE IMAGING  
USING PHASE DETECTION FOR MATERIAL SEPARATION**

**ABSTRACT OF THE DISCLOSURE**

5

Magnetic resonance imaging of a body uses steady state free precession with material separation for the selective imaging of two species, such as blood or fat. The refocusing property of SSFP is used with signal phase detection to suppress either water or lipid. Phase and/or frequency of the RF excitation pulse and repetition time are selected so that resonant 10 frequencies of water,  $f_w$ , and lipid,  $f_l$ , are on opposite sides of the signal null frequency.